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ABSTRACT

Ninety-six male students participated in an experiment studying the relationship between reciprocity and compensation in dyadic communication. The subjects were asked to solve a hypothetical problem and, depending on their pretest instructions, were given an orientation toward competition or cooperation with their partners. Time was used to test development in the dependent variables confirmation, disconfirmation, and looking measures. Confirmation/disconfirmation represented the degree of support given by an individual to the relationship or the other member in the relationship. It was shown that confirmation can be measured reliably as a dependent variable. There was a significant correlation between the amounts of verbal confirmation and disconfirmation of dyadic partners, illustrating reciprocity. The various looking behaviors were correlated, and some produced significant negative correlations between dyadic partners, supporting compensation. There was an example of co-occurrence of reciprocity on the verbal and compensation on the nonverbal confirmation. Hypotheses on the effects of cooperation/competition on confirmation/disconfirmation were generally supported. Some of the looking behaviors were also affected by cooperation. As the experiment progressed, subjects tended to increase confirmation. (Appended material includes figures and tables related to the study.) (RL)

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CONFIRMATION/DISCONFIRMATION IN COOPERATION AND
COMPETITION: RECIPROCITY OR COMPENSATION?¹

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This study focuses on the contradiction that arises from the concurrent postulation of the concepts reciprocity and compensation. To this end, the theoretical nature of this conceptual dilemma will be described. Then, the concept of confirmation/disconfirmation, used to investigate reciprocity and compensation, will be introduced. Finally, the use of cooperation/competition to heighten confirmation and disconfirmation will be explained. Research questions and hypotheses are presented throughout, as they arise.

Reciprocity and Compensation

Interpersonal distancing refers to approach or withdrawal along proxemic (nonverbal), kinesic, paralinguistic, and linguistic modalities (Kaplan, 1975). Its study has advanced along two separate lines: proxemic modalities, and verbal communication. In two comprehensive and recent reviews of the literatures, the proxemic (Patterson, 1973) and the verbal (Cozby, 1973), are almost completely mutually exclusive in reference citations (Firestone, 1977).

Compensation. The dominant model in proxemic research has been Argyle and Dean's (1965) "distance equilibrium." Each person has his own intimacy equilibrium level, which is a function of different modalities. These include interaction proximity, amount of touching, mutual gaze, directness of body orientation, forwardness of body lean, vocal amplitude, intimacy of verbal disclosure, and amount of such disclosure (Kaplan, 1975), to which may be added amount of smiling, head nods, and self manipulation (Firestone, 1977). In Argyle and Dean's (1965) "Affiliative Conflict" theory this equilibrium level is a resolution of approach and avoidance tendencies. The closer a person approaches another the more is the affiliative need satisfied; but if approach is beyond the equilibrium (e.g.,

standing too close, or having too much eye contact), anxiety is aroused (Miller, 1944). When the deviation from equilibrium is in the opposite direction (e.g., standing too far, or too little eye contact), the person will feel deprived of affiliative satisfaction. In either case, if equilibrium is disturbed on one modality, adjustments will be made on the other modality (or modalities) to restore equilibrium. Excessive approach will cause withdrawal, and excessive withdrawal will cause approach.

Reciprocity. Research on verbal intimacy was stimulated by Jourard's description of the "dyadic effect" in self-disclosure (1959, 1971). The dominant principle here has been the "norm of reciprocity" (Gouldner, 1960). This model suggests that breadth (number of topics) and depth (relative intimacy) of communication covary between partners in interaction, and that mutuality governs output. Increase in disclosure by one partner exerts pressure on the other partner to match the disclosure level of the first. Whether this pressure is explained as "social attraction" or as "commodity exchange" (Cozby, 1973), the model predicts that approach triggers approach and withdrawal causes withdrawal.

The dilemma. The reviews mentioned (Patterson, 1973; Cozby, 1973) and subsequent studies amply document evidence supporting the two principles: compensation generally governs proxemic (nonverbal) distancing, and reciprocity governs verbal distancing in social relations.² The two principles are diametrically opposed and seem incompatible. Compensation is a static model, with a constant equilibrium, and it cannot account for development or decay in a relationship. Reciprocity is dynamic, but disclosure might according to this principle fluctuate aimlessly, depending only

on the dominant participant; it does not account for stability in a relationship. Compensation is a see-saw, reciprocity a spiral; it seems reasonable to common sense that neither alone can explain the behavior of intimacy, but can they operate together? Can it be that simultaneous behaviors (i.e., verbal and nonverbal) are governed by two such opposing principles?

Several studies attempted to reconcile compensation and reciprocity (Firestone, 1977) by attraction mediation (Derlega, Harris & Chaikin, 1973; Firestone, Kaplan, & Sodikoff, 1974; Klein, Kaplan, & Firestone, 1975; Rubin, 1973, 1975). This model posits that if changes of intimacy lead to increased attraction, further distance-reducing behaviors may follow (reciprocity); and if intimacy changes lead to decreased attraction, distance will be increased by withdrawal (compensation; Klein et al, 1975). Each of these studies obtained evidence for verbal reciprocity, but did not find any enhancement in intent to disclose or actual disclosure attributable to liking.

Cozby (1973) tested whether "liking and trust" (social attraction) or the "reciprocity norm" (commodity exchange) controls reciprocation. While results have generally been interpreted in terms of "liking and trust," Cozby states that both processes operate, and that his experiments cannot be seen as a refutation of Argyle and Dean's (1965) model.

Patterson (1976) suggests an arousal model of intimacy. Changes in a person's intimacy behaviors precipitate arousal in the other person. The arousal change may be labeled a positive or a negative emotional state. The model predicts that positively labeled states facilitate reciprocal reactions, while negatively labeled states facilitate compensatory reactions

explained soon) is a pre-requisite for self-disclosure. The concept is introduced in the following paragraphs.

Confirmation/Disconfirmation

Confirmation is essential for interpersonal relationship and has therefore been advocated and studied in philosophy (Buber, 1965), psychiatry (Ruesch, 1957, 1961; Laing, 1961, 1965, 1969; Watzlawick, Beavin, & Jackson, 1967), psychology (Maslow, 1954; Rogers, 1957a, 1957b, 1961, 1965, 1969, 1970), as well as anthropology (Hall, 1966), religion (Buber, 1970; Boman, 1960), and communication (Barnlund, 1968; Giffin, 1970, 1971; Gibb, 1961; Sieburg, 1969, 1972, 1973a, 1973b, 1976; Sundell, 1972; Clark, 1973; Jacobs, 1973; Cissna & Keating, 1979).

Confirmation is defined as any behavior which (1) validates the other's existence, (2) validates his experience, and (3) indicates agreement or willingness to be in a relationship (Sieburg, 1973a). These are hierarchical levels, level 1 being a precondition for 2, and 2 for 3. Confirmation is satisfying because it affirms the receiver's self-experience, and disconfirmation is painful because it denies or negates a person's need to have his self-experience affirmed by others. Awareness, recognition-acceptance, and affiliation are ascending in the hierarchy of confirmation, while indifference, disqualifying (inhibiting), and imperviousness signify increasing disconfirmation. Building on Sieburg, Jacobs (1973, pp. 28-29) provides the paradigm of confirmation and its behavioral indicators, arranged in six categories: (1) affiliation, (2) disaffiliation, (3) furthering, (4) non-furthering (3 and 4 so named because of their effect on communication), (5) inhibiting, and (6) imperviousness. Awareness has been collapsed into non-furthering. (Figure 1)

Insert Figure 1 about here

(p. 253). Patterson concludes the difference may come from differential availability of these two modes to awareness, but that it is difficult at present to assess the role of awareness in expression of intimacy (p. 243). Thus, the issue of reciprocity vs. compensation remains unresolved.

The concept of confirmation/disconfirmation was selected as a means for obtaining greater understanding of these theoretical positions. It is recognized that confirmation/disconfirmation is not completely isomorphic with self disclosure or nonverbal communication. Nevertheless, they all share elements in common and are relevant to the study of intimacy. It is therefore posited that:

Hypothesis I: There will be a significant positive correlation between verbal confirmation scores of dyad partners (reciprocity); and

Hypothesis II: There will be a significant positive correlation between verbal disconfirmation scores of dyad partners (reciprocity).

In a great number of verbal intimacy studies self-disclosure has been employed as a dependent variable; in the present study, confirmation/disconfirmation is used instead, for two reasons: (1) reciprocity is theoretically expected to occur in confirmation, as suggested, for example, by Buber (1965, 1970); and (2) confirmation/disconfirmation occurs much more frequently than self-disclosure in everyday life, and has therefore a very pragmatic bearing on interpersonal relationship. Any viable relationship requires mutuality of relational definitions (Morton, Alexander, & Altman, 1976). No such definition is possible without confirmation. Confirmation on its three levels (existence, experience, and relationship,

Confirmation is largely verbal, but includes nonverbal behaviors (looking, body orientation and angle, head nods and shakes). Only gaze behavior was studied, because of its salience as an index of intimacy in social interaction (Argyle, 1969; Argyle & Cook, 1976; Cook, 1977). Before approaching the hypotheses presented in this study, a brief summary of previous findings in confirmation/disconfirmation and mention of the idea of cooperation/competition as related to confirmation are in order.

Sieburg (1969) found that effective known groups used significantly fewer disconfirming responses than ineffective ones. Clark (1973) studied the effects of confirmation, self-disclosure and accuracy of interpersonal perception on satisfaction and attraction in marital dyads. Confirmation accounted for a greater part of the variance than any other viable tested (43 to 53%, depending on length of relationship). Sundell (1972) demonstrated reciprocity in student-teacher confirmation: when the teachers were confirming, students tended to be confirming; when teachers were disconfirming, students tended to be disconfirming. Jacobs (1973) varied the confirmation of confederates in interviews and found subjects discriminated not only between confirming and disconfirming, but also between six different categories of confirmation and disconfirmation. Their satisfaction with the task, their performance, and the interview experience, differed significantly. In sum, confirmation can be recognized, it is reciprocal, and it is interpersonally satisfying, not unlike cooperation to which we turn now.

Cooperation/Competition

Cooperation should lead to confirmation (and vice versa). In cooperation there is a "diminution of ego demands . . . [so that] another person's

activities . . . may be as satisfactory as your own" (Lewis, 1944, in Deutsch, 1949a, p. 131). A cooperating group is seen as such by members, substitution is more frequent, as is helpfulness. Individuals under cooperation show more attentiveness to others, mutual comprehension of communication, friendliness and favorable evaluation of the group and its product, and incorporation of the attitude of the generalized other (Deutsch, 1949b, p. 230). Confirmation theory would suggest that these qualities arise in part due to confirming behavior of members. Indeed, Abric and Vacheort (1975-76) tested and verified the hypothesis that the behavior of subjects in play situations is determined by their perceptions of partner and task: (a) Perception of the partner as "human," rather than as "machine," favors cooperation. (b) Perception of the task as "resolution of problem" rather than as "play and win," facilitates noncompetitive behavior. The literature is replete with evidence to support the assumption that cooperation will lead to confirmation (see Davis, Laughlin & Komorita, 1976). Lewis (1944) suggested that in cooperation there is a diminution of ego demands, and Deutsch (1949b) found Ss in cooperation showing more attentiveness, helpfulness, friendliness to others and better comprehension of communication from others. This leads to the following hypotheses:

Hypothesis III: There will be significantly more confirmation under cooperation than under competition.

Hypothesis IV: There will be significantly more disconfirmation under competition than under cooperation.

Remembering that gaze is an index of intimacy, and that whenever there is confirmation, there usually is looking, it follows that:

Hypothesis V: There will be significantly more gaze and mutual gaze under cooperation than under competition.

The discussion of cooperation/competition warrants the foregoing hypotheses. We expect cooperation to lead to confirmation, and competition to disconfirmation. What will happen, however, when a cooperating partner is coupled with a competing partner? We have no sufficient evidence for directional hypotheses, but some research questions can be asked:

Research Questions:

1. What is the relationship between gaze and verbal confirmation?
2. Can reciprocity and compensation co-occur?
3. In the mixed condition, will the cooperating Ss or the competing ones prevail?
4. In a mixed combination, will reciprocity or compensation prevail?

METHODS AND PROCEDURE

Subjects and Design

Subjects were 96 volunteer male graduate and undergraduate students enrolled in social science courses. A 3x3 factorial design with repeated measures was employed (three conditions: Cooperate [Coop], Compete [Comp], and Mixed, by Time [1, 2 and 3]). Measures were recorded in minute intervals, and three different intervals were analyzed for each subject.

Manipulation

Students were randomly assigned to cells. Coop Ss were told evaluation would be joint for the pair; the "score" would depend on logical reasoning and ease of discussion. Comp Ss believed they would be judged individually, with the higher "score" for the S who most influences his partner. In the

Mixed condition Coop Ss were paired with Comp Ss (each S believing his partner to be in the same condition as he).

The task called for a choice on the New History Teacher problem, which ambiguously describes several candidates for the position of history teacher in a high school. Candidates' description is in terms of controversial values (e.g., religious affiliation, political orientation, sexual preference, etc.) intended to heighten the salience of Ss beliefs and attitudes.

Cognitive dissonance may arise: the need to choose between a brilliant teacher who is also an atheist, and an outstanding scholar who is also homosexual, may be disquieting and lead to some heated argument. All Coop Ss were asked to reach consensus within pairs (including those in the Mixed condition); all the Comp Ss were to persuade the partner to accept their candidate. In any condition, if partners made the same choice initially (on their own), they were asked to prepare a defense for that choice to be presented before an imaginary "Board of Education" (this procedure insured that Ss would still be talking to each other).

Procedures

During recruitment students were only told this is a study of dyadic interaction. Volunteers were invited in pairs to the laboratory and led into separate rooms, one of which was equipped for video and audio recording. After studying the task problem Ss joined each other in the "studio," in plain armless chairs, 2.5 feet apart. A full face medium close shot of each student was videotaped (Goldstein, Kilroy, & Van de Voort, 1976), using a split-screen (Stephenson et al., 1972). No time limit was enforced, and interactions lasted from 3.7 to 25.6 minutes, with a mean of 12.5 (median 11.2).

Once the students agreed on a solution or agreed to disagree, they completed the AA Descriptive List (AADL; Jacobs, 1973, Figure 2) and the Perceived Confirmation Inventory (PCI; Jacobs, 1973; Figure 3).³

Insert Figures 2 and 3 about here

Dependent variables. Confirmation was coded in six categories (Sieburg, 1969; Jacobs, 1973; Figure 1). Inter-coder reliability yielded $r = .98$ ($p < .001$) with $N = 22$ (three-minute units), and $r = .94$ ($p < .001$) with $N = 66$ (one-minute units). A coding manual was prepared, based on Sieburg's basic paradigm (Figure 4).

Insert Figure 4 about here

Confirmation categories were weighted arbitrarily to recognize intensity levels: affiliation and imperviousness by 3, inhibiting and furthering by 2, and disaffiliation, awareness and non-furthering by 1. The coding sheet was a grid of six columns (categories) and three rows (times 1 to 3, i.e., the second minute, the middle minute, and the one-but-last minute). Disconfirmation scores were negatively valued. Scores were obtained for: Gross Confirmation, number of all confirming behaviors; Disconfirmation, all disconfirmation behaviors; and Net Confirmation, Gross Confirmation minus Disconfirmation.

Looking and speaking were recorded on an event recorder and defined as in Stephenson et al. (1972): "visual behavior which elicits the 'face reaction,'" and "periods of talking or 'holding the floor' (which incorporate temporary pauses during which the listener's attention is raised)" (p. 253). Two observers, one for each of the Ss, coded the videotapes simultaneously. The following measures were obtained:

1. Total looking.
2. Number of glances.
3. Looking speaking.
4. Looking not speaking.
5. Speaking.
6. Not speaking.
7. Mutual gaze.
8. Number of mutual gazes speaking.
9. Number of mutual gazes not speaking.
10. Mutual gaze speaking (duration).
11. Mutual gaze not speaking (duration).
12. Mean length of mutual gaze.
13. Mean length of mutual gaze speaking.
14. Mean length of mutual gaze not speaking.
15. Mean length of gaze.

Unit of Analysis

The question of unit of analysis had to be answered on two levels:

(1) what part of the interaction to analyze, and (2) what units to use within that part.

(1) Due to the different interaction lengths, proportions had to be used. The choice was between proportion in a time sample and in the whole interaction. A time sample would allow testing for possible development in confirmation over time: although durations involved were brief (the longest was 25.6 minutes), it was considered worth while to test the effect of time on confirmation. A sample consisting of one minute after the beginning (to allow initial social ritual conversation), one from the middle, and one minute before the conclusion (to allow time for leave taking) was seen as appropriate (Knapp et al., 1973). A correlation was computed between average confirmation per minute for the interaction and the average per minute for the three minute sample. With $N = 14$, $r = .56$ was obtained ($p < .03$). Although only moderate, the correlation was significant enough to warrant using the time sample.

(2) The "within" unit of analysis had to be short enough to yield some frequency, yet long enough not to lose the critical behavior by "sifting." Another time sample (e.g., every 10 seconds) seemed too arbitrary--verbal confirmation does not happen in a flash, it takes time. The utterance--a complete thought--was chosen as unit of analysis. This might coincide with turn taking, but might also run across several turns. Back channel responses (Duncan & Fiske, 1977) were not considered interruptions (disconfirming), in distinction from turn beginnings, unless they were unequivocally negative evaluative. These responses are either attention signals or "point granting" or assenting signals (Kendon, 1967, in Duncan & Fiske, 1977). The latter authors see five forms of back-channel responses: (a) m-hm, (b) sentence completion, (c) request for clarification, (d) brief restatement, and (e) head nods and shakes (pp. 201-202). The first four were in most cases classified as confirming. The fifth, which could be confirming or disconfirming, was not analyzed, although it does have its place among indices of confirmation.

RESULTS AND DISCUSSION

The results reported in this section deal first with hypotheses arising from reciprocity/compensation, and then with those stemming from cooperation/competition, as they affect confirmation/disconfirmation.

Hypothesis I. The hypothesis predicted a significant positive correlation between confirmation scores of dyadic partners. The hypothesis was supported by a correlational analysis of Net Confirmation of dyadic partners ($r = .41$, $t = 5.35$, $df=142$, $p=.001$, two-tailed). This supports the reciprocity principle. The more a subject confirmed his partner, the more the subject confirmed him. Confirming behavior corroborates much

previous research in self-disclosure. Openness to another is correlated with openness of the other.

Hypothesis II. A significant positive correlation was predicted between disconfirmation scores of dyadic partners. Results of a correlational analysis support the hypothesis and the reciprocity principle ($r = .38$; $t = 5.005$, $p = .001$, two-tailed). In disconfirmation as in confirmation, the more one gives the more one gets. This too is in line with self disclosure research, in which reciprocity emerged as the governing principle in verbal intimacy.

The results reported so far support the reciprocity principle (hypotheses I and II). To examine the relationship between verbal confirmation and looking (research question 1), and the co-occurrence of verbal reciprocity and nonverbal compensation (research question 2), some more analyses were undertaken.

Research Question 1

A correlational analysis revealed small but significant correlations between Looking, Looking Not Speaking, Looking Speaking and MG on one hand, and Net Confirmation and Disconfirmation on the other. Coefficients and probability levels are shown in Table 1. The more a person confirmed or disconfirmed his partner, the more was he looking at him, both while speaking and while not speaking, and the more MG they had. If this is true, and if as we have seen verbal confirmation and disconfirmation are reciprocal, one is tempted to extrapolate that looking is reciprocal too.

Insert Table 1 about here

Correlations were sought between dyadic partners on looking behaviors. We analyzed Looking, Looking Not Speaking, Looking Speaking and MG. Table 2 gives coefficients of correlation between the four variables for all subjects, and Table 3 shows correlations on the same variables between dyad partners.

Insert Tables 2 and 3 about here

It is clear from Tables 2 and 3 that (a) (as was expected) looking behaviors are correlated, and (b) there is no reciprocity in the looking of partners, but (c) in some cases compensation is indicated. In Looking there is no correlation worth mention, but Looking Speaking and Looking Not Speaking are of more interest: the more A looked at his partner B, both while speaking and while not speaking, the less B looked at A while he, B, was speaking and while not speaking.

Research Question 2

Combined with the information obtained earlier, that verbal confirmation and disconfirmation are reciprocal, this finding means that while subjects were reciprocating on the verbal modality, they were compensating nonverbally (looking less at partner while being looked at more) both when speaking and when not speaking. We thus have a clear example of interaction in which the verbal and nonverbal modalities are operating in opposite directions, governed by the opposing principles reciprocity and compensation at the same time. While not related to the hypotheses offered, this evidence confirms the validity of the research question on co-occurrence of reciprocity and compensation.

The correlations just mentioned (Tables 1, 2, and 3), despite their significance, are small. For example, Looking Not Speaking of A and B

($r = .2341$) gives a coefficient of determination $r^2 = .0548$. The correlation accounts for only five percent of the variance. The results are nevertheless interesting. Previous research has amply documented reciprocity and compensation in their separate verbal and nonverbal domains, but the present results give a picture of the interaction between the verbal and nonverbal modalities. No matter whether a person is confirmed or disconfirmed, he/she decreases gaze while not speaking when looked at by a not-speaking other. The same is true when the person and the partner are speaking. Verbal confirmation (positive or negative) is independent of looking. If A is confirming B and looking more, B confirms but looks less, reducing intimacy nonverbally while reciprocating verbally. If A disconfirms B verbally and at the same time looks at him more (we recall the different functions of expressive gaze, approach and affiliation, but also control and challenge; Kendon, 1977), B reciprocates verbally by disconfirming, and at the same time compensates by looking less. In short, we have verbal reciprocity simultaneously with nonverbal compensation.

Cooperation/Competition

Hypothesis III, predicting more confirmation under cooperation than under competition, did not get unequivocal support. Anova of Gross Confirmation showed no significant main effect or interaction for condition. Time approached significance ($F=2.61$, $df=2/186$, $p=.076$)

For Net Confirmation results differed only slightly: there were no main effects, and Time approached significance again ($F=2.67$, $df=2/186$, $p=.072$); but an interaction condition by time was significant ($F=3.55$, $df=4/186$, $p=.008$; Figure 5). The effects of Time for the three conditions differed, but this provides only partial support to the hypothesis.

Insert Figure 5 about here

A simple effects test was done to determine the significance of differences between condition means (Table 4). At time 1 there was no significant difference. At Time 2 the difference between Coop and Comp was significant ($p=.009$), as was the difference between Comp and Mixed ($p=.040$); the same differences were significant at Time 3 ($p=.018$ and $p=.008$ respectively).

Insert Table 4 about here

Cooperating Ss started from a relatively low amount of confirmation, but increased confirmation almost linearly from Time 1 to Times 2 and 3. Competing Ss confirmed slightly more than the Coop at Time 1 (perhaps more eager to "get going"), but as the discussion progressed their confirming decreased at Time 2 below that of the Coop, and then increased somewhat at Time 3, ending well below the Coop. As interaction developed, the Coop reciprocated partners' confirmation (reinforcement), and the almost linear increase illustrates the spiralling "dyadic effect." The Comp Ss on the other hand decreased confirmation from Time 1 to Time 2, because they focused more on "winning" than on the relationship. Their increased confirmation from Time 2 to Time 3 seems to show a desire to preserve the agreement gained: the initiator increased confirmation perhaps to reinforce the partner for accepting his solution, while the latter increased it to forestall cognitive dissonance (likely to follow rejection [disconfirming] of the partner whose solution was accepted).

Research Questions 3 and 4

The Mixed Ss received conflicting instructions, which may explain why their confirmation was lowest among conditions at the start. Like the Coop, they confirmed more at Time 2, and their increase was steeper to Time 3 than that of the other two groups. The steeper increase is a response to the disconcerting and "unexpected" behavior of the partner. It also shows confirmation is contagious: as long as one partner confirms (the cooperating partner), the other (the competing partner) will too.

Hypothesis IV predicted more disconfirmation under Comp than under Coop. It was supported. Analysis of disconfirmation showed a main effect Condition ($F=3.52$, $df=2/93$, $p=.034$) and an interaction effect Condition by Time ($F=4.19$, $df=4/196$, $p=.003$; Table 5 and Figure 5). Condition affected confirmation only when it was negative, that is, disconfirmation. Table 5 shows the means of the three conditions over Time and the simple effects test results. At Time 2 the difference between Coop and Comp was significant ($p=.015$); and at Time 3 there was a significant difference between Coop and Comp ($p=.008$), and between Comp and Mixed ($p=.001$). The Comp disconfirmed slightly higher than the Coop at Time 1, and the difference increased at Times 2 and 3. The Mixed disconfirmed more than all others at Time 1 and decreased almost linearly to Time 3.

Insert Figure 5 and Table 5 about here

(Although below significance, the difference between Coop and Mixed at Time 1 very nearly approaches it: the required one-tailed t at the .05 level with 60 df is 1.671; the obtained t was 1.66, $p=.0505$.) The Coop increased disconfirmation somewhat from Time 1 to Time 2, and also almost

leveled to Time 3. And the Mixed almost linearly decreased disconfirming between Times 1 and 3. It seems the Mixed worked hardest at achieving and preserving consensus; the other two groups reached an "acceptable" disconfirming level at Time 2 which was practically unchanged at Time 3. This may indicate that both the Coop and the Comp were happier with the unfolding interaction, and needed no special precaution to protect the consensual solution. As with Net Confirmation, reciprocity is illustrated by disconfirmation curves: intimacy declines (disconfirmation rises) in Coop and Comp, and increases (disconfirming declines) in the Mixed.

Hypothesis V. The hypothesis predicts more gaze and mutual gaze (MG) in Coop than in Comp; results support the hypothesis on one variable only of the nine tested. In Mean Length of MG Not Speaking Condition had a main effect ($F=5.22$, $df=2/93$, $p=.007$); also significant was Time main effect ($F=4.60$, $df=2/176$, $p=.011$). The interaction Condition by Time approached significance ($F=2.17$, $df=4/180$, $p=.075$; Table 6 and Figure 7). The variables which failed to show a Condition effect were: Looking, Looking Not Speaking, MG, MG Not Speaking, MG Speaking, Mean Length of Gaze, Mean Length of MG, and Mean Length of MG Speaking.

Insert Table 6 and Figure 7 about here

As Table 6 shows, there were significant differences on Mean Length MG Not Speaking at Time 1 between Coop and Mixed ($p=.024$); at Time 2 between Coop and Comp ($p=.006$) and between Coop and Mixed ($p=.032$); and at Time 3 between Coop and Mixed ($p=.040$) and between Comp and Mixed ($p=.014$). Because Mean Length MG Not Speaking is the only variable supporting the hypothesis, and because it is not the most commonly used measure of gaze (Russo, 1975), its interpretation must be cautious.

Coop had higher means at Time 1 and 2; at Time 3 the Comp surpassed them (Figure 7). The Mixed had the shortest mean at Time 1, declined at Time 2 and declined further at Time 3. The explanation of verbal confirmation may fit here too: at the start of interaction subjects needed to see "what it is all about," hence the longer gazes. Cook (1977) cites a study by Kendon and himself (Kendon & Cook, 1969) which "found that subjects preferred others who gave long glances, but evaluated less favorably those who looked frequently and in short glances" (1977, p. 331). Perhaps the Mixed did not "prefer" each other. As in verbal confirmation and disconfirmation, the pattern of the Coop and the Mixed is similar, and the Comp stand out. As interaction advanced, the Coop and Mixed offered less and less looks. The Comp declined from Time 1 to Time 2, but then increased approximately to their initial level at Time 3. Initially Ss seem to have good will or curiosity (or both) for each other; when mutual impressions have been formed and discussion is under way they scrutinize each other less and get more involved in their task. Thus far the Comp parallel the Coop. But at Time 2, approaching a solution, the Comp need more information about each other than the Coop, and therefore look more.

CONCLUSIONS

Conclusions to be drawn from this study may now be summarized. Much has been written about the process nature of communication; but in fact most of interpersonal research has focused on individual behaviors from which inferences are made about the relationship (Morton, Alexander, & Altman, 1976). The methodology employed here is one step toward seeing the relating process as the essential unit of analysis. Employment of the

conditions (Coop, Comp, and Mixed) and of the Time factor contributed to this end: it was shown that confirmation patterns differ with the nature of the condition, and that the Time factor affected confirmation even in the relatively short interactions.

The co-occurrence of verbal reciprocity and nonverbal compensation has multiple implications for education, psychotherapy, family interaction, and communication research. Parents in adult education programs and students of interpersonal communication and clinical psychology should be sensitized to the verbal/nonverbal discrepancy. The distillment of net approach and avoidance levels from a variety of seemingly contradictory cues is a delicate skill that ought to be studied and fostered. Psychologists have been aware of the issue for a long time, but perhaps greater attention to confirmation/disconfirmation on the basic level of everyday interaction might lessen the demand upon their clinical services.

The inference of co-occurrence of verbal reciprocity and nonverbal compensation relies on obtained correlations. These showed that over the analyzed time interval globally (in this case, sixty seconds), verbal reciprocity and nonverbal compensation co-occurred. But reciprocity might have occurred at second 13, and compensation at second 45, and the present analysis could still show co-occurrence. The present use of time sampling was useful in studying the dynamics of the relating process. To pinpoint the co-occurrence of reciprocity and compensation more specifically the strategy employed by Cegala, Alexander and Sokuwitz (1979) may prove enlightening. Transcripts of a shorter videotaped interaction can be used to mark exact occurrence of confirmation and disconfirmation, as well as

looking at or looking away from partner. Such a procedure might yield a more accurate evaluation of the co-occurrence of verbal reciprocity and nonverbal compensation.

Confirmation was reliably measured as a dependent variable, and it was related to the time in the interaction and to cooperation/competition. It should not be assumed, however, that assigned cooperation generates confirmation: at times the competing Ss confirmed more. Perhaps genuine cooperation, involving the whole person, has to come from within, and cannot be manipulated by experimenters. Confirmation and disconfirmation are related to looking. Confirmation and disconfirmation are reciprocal. Looking behaviors of partners indicated compensation. Reciprocity and compensation did occur simultaneously. But the questions how and why they do have no answer in the present data, and remain the goal of a future paper.

NOTES

1. This study relies, in part, on the first author's Ph.D. dissertation directed by the second author.
2. But see Firestone, 1977, for a number of deviant studies.
3. Correlations were computed between the scores on the two instruments, reflecting how Ss perceived their partners in terms of confirmation (between self-reports and the researchers' observations of behavior). The r between Net Confirmation and the partner's AADL score was .91 ($n=288$, $p < .001$); between Net Confirmation and partner's PLI score $r=.94$ ($n=288$, $p < .001$). These results support the validity of our measure of confirmation.

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Figure 1. Sieburg's Paradigm

1.

AFFILIATION CLUSTER

1. Responder reacts to other nonverbally in a way that seems appropriate and congruent with what other is saying.
2. Responder looks at other, turns toward him, and directs his remarks toward him. He does not engage in other tasks, but gives full attention to other while he is speaking.
3. Responds verbally in a way that seems relevant to what the other has said. Specifically, he engages in all of the following response behaviors:
 - A. Elicits further interaction from the other by requesting more information about his topic, expressing interest in what he is saying, or suggesting further discussion as: "Tell me more about that."
 - B. Reflects or acknowledges non-evaluative understanding of what other has said, as "I see." May repeat or paraphrase other's communication to check own understanding.
 - C. Reflects or acknowledges other's feelings by commenting on them non-evaluatively and encouraging him to express them further.
 - D. Speaks of his own feelings and shares information about what has influenced them. Expresses emotions freely, especially those that relate to his reaction toward the other.
 - E. Uses first person pronouns frequently in preference to impersonal generalized forms ("one," "you," or "we").

2.

DISAFFILIATIVE CLUSTER

1. Responder reacts to other nonverbally in a way that seems appropriate and congruent with what other is saying.
2. Responder looks toward other, but avoids any direct eye contact with him, focusing frequently on other things, such as work materials.
3. Responds verbally in a manner that is relevant to other's general theme or topic, but avoids any reference to his own feelings, even if asked. Speaks of impersonal matters or acknowledges other's feelings, but avoids any personal disclosure.
4. Avoids any direct reference to his own relationship with the other speaker, taking the point of view of an outside observer.
5. Speaks of events remote in time and place. Provides historical narrative about things that have happened to others at some earlier time or some other place.

6. Uses frequent impersonal language constructions, such as "there are . . . ," "it appears that . . ." in preference to first person assertions. May substitute generalized forms ("you," "one," or "we," when "I" would seem appropriate).

3.

FURTHERING CLUSTER

1. Responder reacts to other nonverbally (gesture, facial expression, tone of voice) in a way that seems appropriate or congruent with what the other is saying.
2. Responder looks at other, turns toward him, and directs his remarks toward him. He does not engage in other tasks, but gives full attention to other while he is listening.
3. Responds verbally in a way that seems directly relevant to what the other has said. Specifically, engages in all of the following response behaviors:
 - A. Elicits further interaction from the other by requesting more information about his topic, expressing interest in what he is saying, requesting clarification, or suggesting further discussion, as: "Tell me more about that."
 - B. Acknowledges or reflects non-evaluative understanding of what other has said, as, "I see." May repeat or paraphrase other's communication to check own understanding.
 - C. Reflects or acknowledges other's feelings by commenting on them non-evaluatively and encouraging him to express them further.

4.

NON-FURTHERING CLUSTER

1. Responder reacts to other nonverbally in a way that seems appropriate and congruent with what other is saying.
2. Responder looks at other, turns toward him, and directs his remarks toward him. He does not engage in other tasks, but gives full attention to the other while he is speaking.
3. Responds verbally in a way that seems relevant to what the other has said. Specifically, he engages in any or all of the following response behaviors:
 - A. Exchanges social amenities or rituals, as "Hello," "How are you?" "Fine, and you?" "Have a seat," "Thank you." "Nice weather today," "Yes, it is."
 - B. Asks impersonal, task-related questions, or provides task-related answers, as "Name?" "John Jones." "Address?" "What can I do for you?"

- C. Elaborates on other's theme, supplying additional information, or suggesting that the other is factually right or wrong, correct or incorrect. (Does not mention his feelings about what the other has said, but limits his elaboration to factual aspects.)

5.

INHIBITING CLUSTER

1. Responder reacts to other nonverbally in a way that seems appropriate and congruent with what other is saying.
2. Responder looks at other, turns toward him, and directs his remarks toward him. He does not engage in other tasks, but gives full attention to other while he is speaking.
3. Responds verbally in a way that seems relevant to what other has said. Specifically, he engages in any or all of the following response behaviors:
 - A. Interprets, analyzes, or asks the other to analyze the significance of what he has said ("Why do you suppose it is that you always. . .?"). Tells the other what he believes his problem to be, using psychiatric terms whenever possible ("You seem to have an acute Oedipal fixation.") Explores deep, unconscious motives of other's.
 - B. Speaks for the other, telling him how he really feels or what he really means ("I know you don't mean that.") May deny other's expressed feelings, substituting something of his own, as insisting that other has only positive feelings.
 - C. Evaluates the other's expression negatively, implying that he has no right to feel as he says he does. ("How can you possibly feel that way after all that's been done for you?" or "You should be ashamed to feel that way when. . .").
 - D. Stresses own benevolent position in regard to other ("I'm only doing this for your own good.").

6.

IMPERVIOUSNESS CLUSTER

Responder performs any or all of the following behaviors:

1. Turns away from the other; does not look directly at him or make any eye contact. Performs other unrelated tasks (reads, shuffles papers, answers telephone, talks with third party) while other is speaking.
2. Makes no nonverbal responses to other's communication--facial expression is noncommittal and gestures, if used, are irrelevant or inappropriate to other's communication.
3. Makes no verbal response; remains silent even when reply seems expected.

4. If and when he speaks, he engages in any or all of the following responses:
- A. Conducts prolonged, unbroken, and irrelevant monologue, not permitting other to enter in, or ignoring his input if he does attempt to speak. Content of monologue has little if anything to do with what other has been saying.
 - B. Makes disruptive interjections, "clowns," disrupts with nonverbal distractions, irrelevant questions, or unrelated comments.
 - C. Introduces new and apparently unrelated topics without warning or explanation.
 - D. Ignores other's attempt to introduce a new topic, returning to his own topic again and again disregarding other's intervening comments. May appear to misinterpret what the other has said, and continue to respond to his own misinterpretation in spite of the other's attempt to correct it.
 - E. Responds obliquely by reacting to an incidental part of the other's communication, but seeming to miss the main point. May appear to acknowledge the other's communication, but then takes the conversation in quite a different direction. May drift from the point by being reminded of something in his own experience, making only a token connection with other's topic.

Figure 2

AA DESCRIPTIVE LIST

CHECK THE LINE OPPOSITE THE STATEMENT CLUSTER WHICH BEST DESCRIBES HOW
YOUR PARTNER TREATED YOU.

- | | |
|-------------|---|
| 1. _____ | Ignored me
Never answered me
Interrupted me
Gave me irrelevant response |
| 2. _____ | Lectured to me
Analyzed me
Criticized me
Evaluated me |
| 3. _____ | Polite to me
Business-like to me
Not talkative to me |
| 4. _____ | Listened to me
Questioned me
Accepted me
Was attentive to me |
| 5. _____ | Impersonal to me
Had little eye contact with me
Non-communicative with me |
| 6. _____ | Friendly to me
Disclosed something about himself
Personal to me
Was relevant to me |

Figure 3

PERCEIVED CONFIRMATION INVENTORY

CIRCLE THE NUMBER ON EACH SCALE THAT MOST ACCURATELY REFLECTS YOUR PERCEPTION OF YOUR PARTNER.

1. He was aware of me.

7	6	5	3	2	1
Agree very strongly	Agree strongly	Agree	Disagree	Disagree strongly	Disagree very strongly

2. He wasn't at all interested in what I had to say.

7	6	5	3	2	1
Agree very strongly	Agree strongly	Agree	Disagree	Disagree strongly	Disagree very strongly

3. He accepted me.

7	6	5	3	2	1
Agree very strongly	Agree strongly	Agree	Disagree	Disagree strongly	Disagree very strongly

4. He had no respect for me.

7	6	5	3	2	1
Agree very strongly	Agree strongly	Agree	Disagree	Disagree strongly	Disagree very strongly

5. He disliked me.

7	6	5	3	2	1
Agree very strongly	Agree strongly	Agree	Disagree	Disagree strongly	Disagree very strongly

6. He trusted me.

7	6	5	3	2	1
Agree very strongly	Agree strongly	Agree	Disagree	Disagree strongly	Disagree very strongly

Figure 4
CODING MANUAL

Level I—Recognition

Awareness Cluster (+1)

- 1) Appropriate nonverbal response
- 2) Relevant verbal response

Imperviousness Cluster (-3)

- 1) Absent or inappropriate non-verbal response
- 2) Silence when reply seems expected
- 3) Monologue--no alternation of speeches permitted
- 4) Irrelevant response; Abrupt topic shift; Disruptive interjection; Interruption with unrelated topic
- 5) Tangential response

Level II--Acknowledgment/Acceptance

Furthering Cluster (+2)

- 1) Clarification
- 2) Expression of understanding
- 3) Nonevaluative acceptance
- 4) Reflection of other's feelings

Non-Furthering Cluster (+1)

- 1) Social ritual
- 2) Answers to direct questions
- 3) Elaboration on other's theme

Inhibiting Cluster (-2)

- 1) Interpretation/analysis
- 2) Denial of other's expressed feelings
- 3) Negative evaluation of other's feelings

Level III--Endorsement

Affiliation Cluster (+3)

- 1) Expression of immediate feelings
- 2) Use of personal language constructions

Disaffiliation Cluster (-1)

- 1) Denial or avoidance of feeling expression
- 2) Denial or avoidance of discussion of relationship with other
- 3) Verbal "distancing" by historical recounting
- 4) Physical distancing from other
- 5) Impersonal language constructions

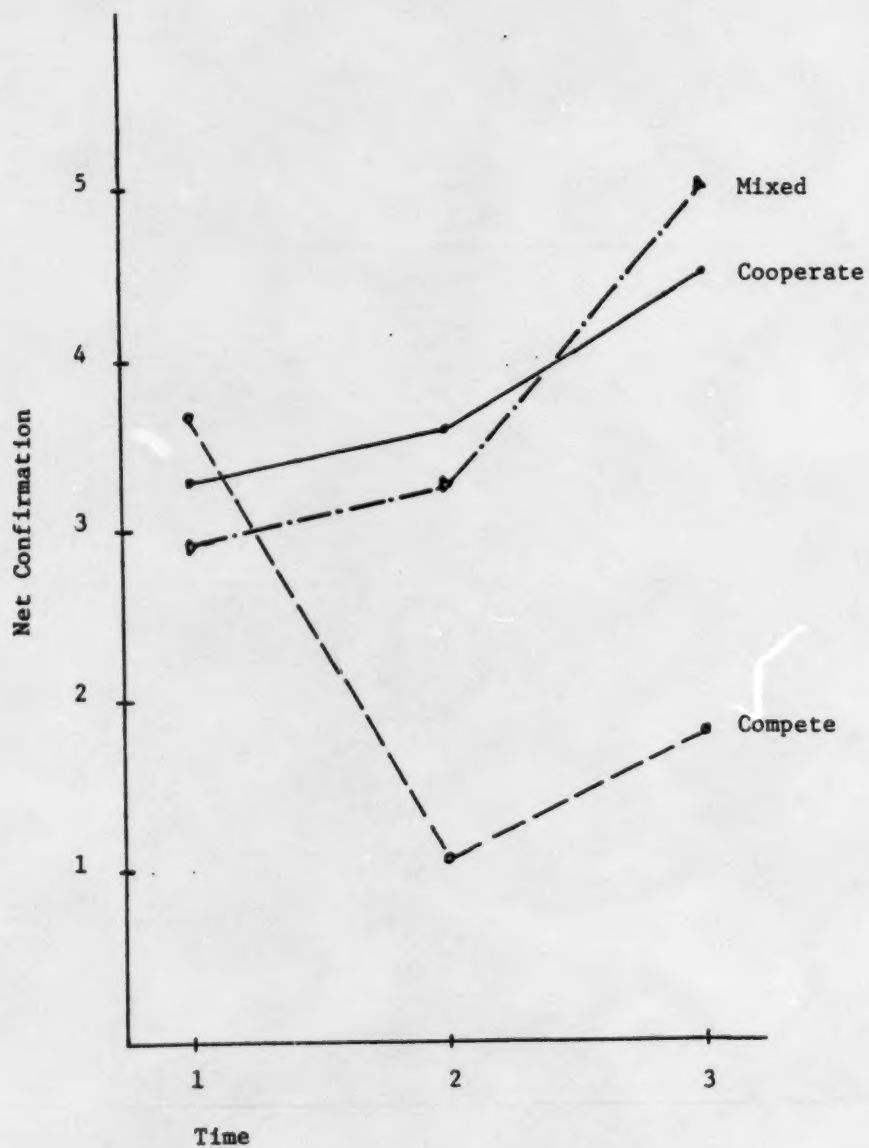


Figure 5. Net Confirmation by Condition Over Time

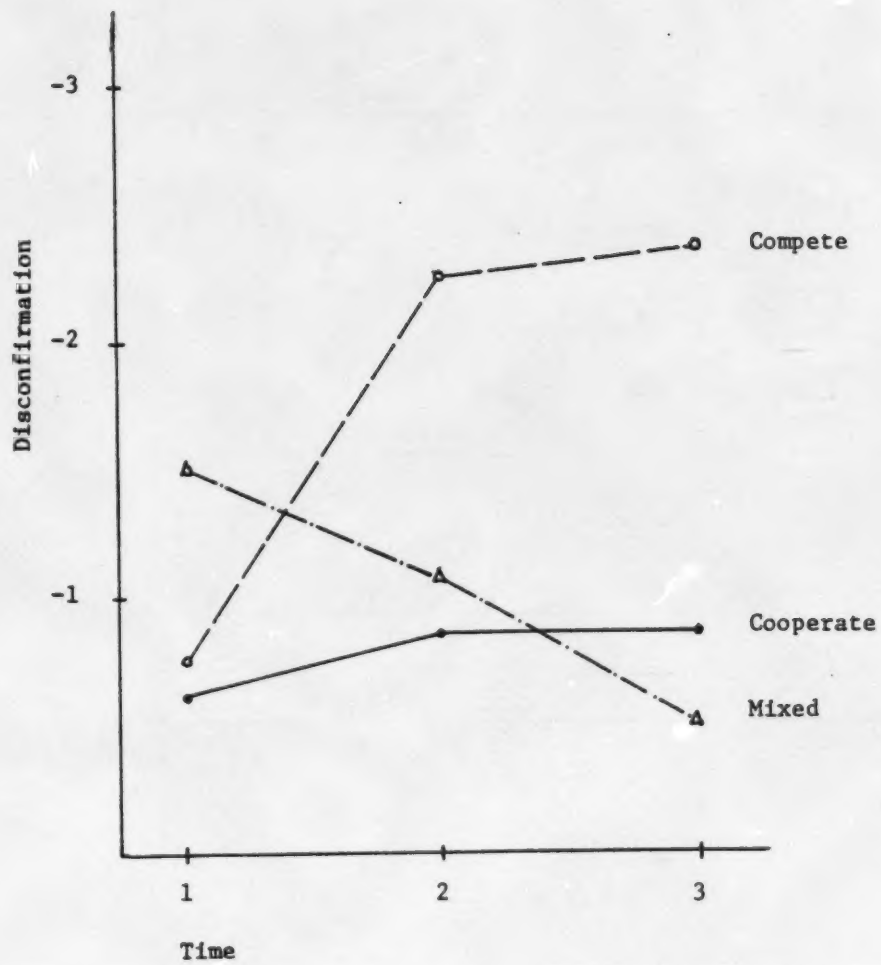


Figure 6. Disconfirmation by Condition Over Time

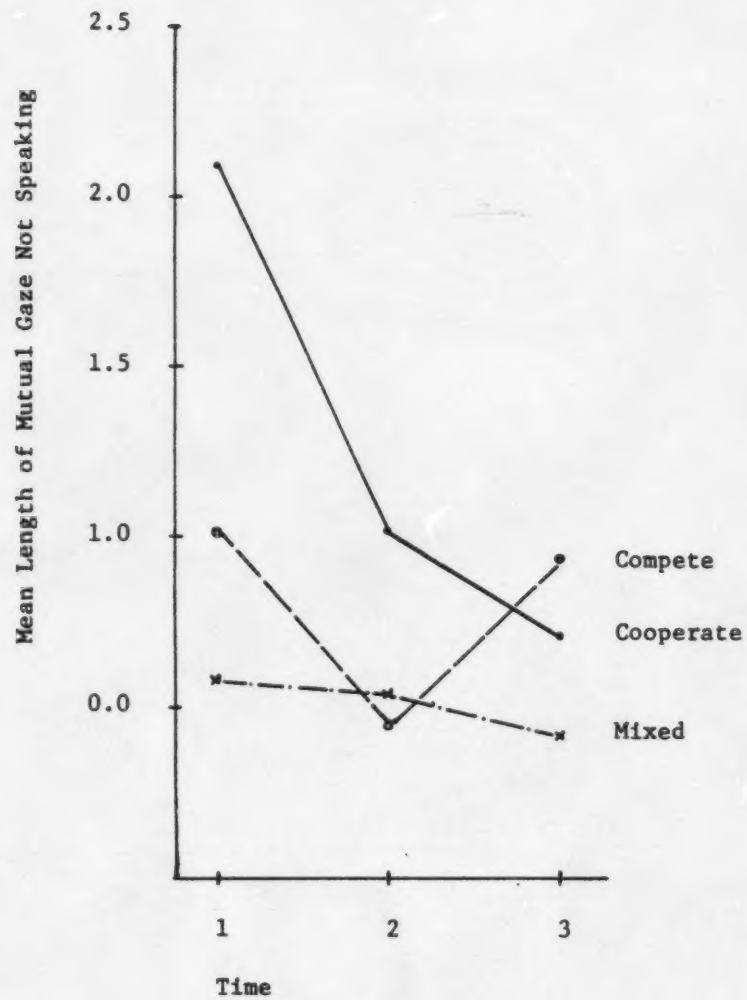


Figure 7. Mean Length of Mutual Gaze Not Speaking by Condition Over Time.

TABLE 1

Correlations Between Verbal Confirmation and Disconfirmation
and Looking, Looking Not Speaking, Looking Speaking and MG

<u>Variable</u>	<u>Net Confirmation</u>			<u>Disconfirmation</u>		
	<u>r</u>	<u>N</u>	<u>p</u> ^{a)}	<u>r</u>	<u>N</u>	<u>p</u>
Looking	.3221	288 ^{b)}	.001	-.2597 ^{c)}	288	.001
Looking Not Speaking	.2906	288	.001	-.1666	288	.002
Looking Speaking	.1348	288	.011	-.2076	288	.001
MG	.2153	288	.001	-.2606	288	.001

a) One-tailed.

b) Each one-minute unit is treated as a case.

c) Negative sign for correlations with Disconfirmation, because Disconfirmation is coded as negative. The correlation is actually positive.

TABLE 2

Correlations Between Looking, Looking Not Speaking
Looking Speaking, and Mutual Gaze

<u>Variable</u>	<u>Looking</u>	<u>Looking Not Speaking</u>	<u>Looking Speaking</u>	<u>Mutual Gaze</u>
Looking	1.000	.8184*	.5410*	.7750*
Looking Not Speaking		1.0000	-.0406 ^{a)}	.6005*
Looking Speaking			1.0000	.4686*
Mutual Gaze				1.0000

* Significant at .001 (N=288).

a) P = .246 (n.s.).

TABLE 3
**Correlations Between Dyadic Partners on Looking, Looking Not
Speaking, and Looking Speaking**

<u>Looking</u>		<u>Looking Not Speaking</u>		<u>Looking Speaking</u>	
A	B	A	B	A	B
Looking					
A	1.0000	.8596 (.001)*	-.0724 (.194)	.3217 (.001)*	.2531 (.001)*
B	.1030 (.110) ^{a)}	.0296	.7589	.1424	.4254
Looking Not Speaking					
A		1.0000	-.2341 (.002)*	-.2074 (.006)*	.3691 (.001)*
B			1.0000	.2951 (.001)*	-.2665 (.001)*
Looking Speaking					
A				1.000	-.1994 (.008)*
B					1.0000

a) Figures in parentheses show probability.

* Significant at better than .05 (N=144).

TABLE 4

Net Confirmation by Condition Over Time and Simple Effects

Means

Condition

<u>Time</u>	<u>Coop</u>	<u>Comp</u>	<u>Mixed</u>
1	3.2813	3.6875	2.9063
2	3.5938	1.0625	3.2500
3	4.5000	1.7813	5.0000

Simple Effects Test

Differences Between Means (t-Test)

<u>Time</u>	<u>Coop-Comp</u>			<u>Coop-Mixed</u>			<u>Comp-Mix</u>		
	<u>t-value</u>	<u>df</u>	<u>probability</u> ^{a)}	<u>t-value</u>	<u>df</u>	<u>probability</u>	<u>t-value</u>	<u>df</u>	<u>probability</u>
1	-0.41	62	.341	0.39	62	.349	0.78	62	.245
2	2.42	62	.009*	0.33	62	.370	-1.78	62	.040*
3	2.15	62	.018*	-0.52	62	.304	-2.49	62	.008*

a) One-tailed. (overall)

* Significant at better than .05.

TABLE 5

Disconfirmation by Condition Over Time and Simple Effects

Means

Condition

<u>Time</u>	<u>Coop</u>	<u>Comp</u>	<u>Mixed</u>
1	-0.6563	-0.7500	-1.5000
2	-0.8125	-2.2813	-1.1250
3	-0.8125	-2.3438	-0.5000

Simple Effects Test

Differences Between Means (t-Test)

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<u>Time</u>	<u>Coop-Comp</u>			<u>Coop-Mixed</u>			<u>Comp-Mix</u>		
	<u>t-value</u>	<u>df</u>	<u>probability^{a)}</u>	<u>t-value</u>	<u>df</u>	<u>probability</u>	<u>t-value</u>	<u>df</u>	<u>probability</u>
1	0.29	62	.388	1.66	62	.0505	1.49	62	.072
2	2.23	62	.015*	0.58	62	.281	-1.49	62	.072
3	2.51	62	.008*	-0.70	62	.219	-3.49	62	.001*

a) One-tailed. (overall)

* Significant at better than .05.

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TABLE 6

Mean Length of MG by Condition Over Time and Simple Effects

<u>Time</u>	<u>Means</u>		
	<u>Condition</u>		
	<u>Coop</u>	<u>Comp</u>	<u>Mixed</u>
1	2.1602	1.0469	0.6380
2	1.0522	0.4655	0.6062
3	0.7474	0.9033	0.3906

Simple Effects

Differences Between Means (t-Test)

<u>Time</u>	<u>Coop-Comp</u>			<u>Coop-Mixed</u>			<u>Comp-Mixed</u>		
	<u>t-value</u>	<u>df</u>	<u>probability^{a)}</u>	<u>t-value</u>	<u>df</u>	<u>probability</u>	<u>t-value</u>	<u>df</u>	<u>probability</u>
1	1.42	62	.080	2.02	62	.024*	1.43	62	.080
2	2.61	62	.006*	1.90	62	.032*	-0.88	62	.190
3	-0.57	62	.286	1.79	62	.040*	2.25	62	.014*

a) One-tailed. (overall)

* Significant at better than .05.

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